OMCLDRR Release Specific Information

Software Version

The current release of OMCLDRR is version 1.9.0.

Data Collection Number 3

OMCLDRR v1.9.0 is the updated release of the software designed to produce effective cloud pressure and fraction from OMI UV-2 channel data using rotational Raman (RR) scattering.

Known Issue List

This section describes significant issues for the OMCLDRR v1.9.0 product.

The OMCLDRR software applies adjustments to the radiance measurements for wavelengths between 346 and 354 nm used by the OMCLDRR algorithm. The OMCLDRR algorithm uses the solar irradiances measured by OMI on a single day (orbit 2327 on 22 December, 2004), and assumes that the solar irradiance (at 1 AU) does not change with time. The solar irradiance is corrected for the Sun-Earth distance effect. Any significant change in the instrument calibration over time may introduce errors, including across-track biases (striping), in the product. To address increases in striping and drifts in the product, version 1.9.0 updates the soft calibration once per year. Therefore, at the start of a year, there may be a discontinuity.

The current version of OMCLDRR uses the spectral range 346-354 nm, where ocean Raman scattering contribution is negligible. Cross-track variations in cloud optical centroid pressure still exist but have been significantly reduced as compared with previous versions as improvements have been made in the characterization of the ocean surface.

Errors in the retrieved cloud pressures increase rapidly as the effective cloud fraction approaches zero. For effective cloud fractions < 5%, the retrievals are flagged and the effective cloud pressure is not retrieved. Instead, an effective scene pressure is retrieved for diagnostic purposes.

Large transient events may produce unreliable cloud pressures at the scan position hit by radiation until the elevated dark current is corrected.

Absorbing aerosol above or within a cloud reduces the retrieved cloud pressure. The reduction depends on aerosol optical properties and cannot be specified *a priori*.

An average scene pressure is retrieved over snow/ice because the cloud fraction is assigned to 1.

Both cloud pressures and fractions are affected by the so-called OMI row anomaly. Please consult the OMCLDRR README file for more information.

Other algorithm features are documented in the OMCLDRR README file.

Known Data Anomalies

From the OMI Data Products webpage:

Several row anomalies have occurred in the recent past. These anomalies affect the quality of the Level 1B and Level 2 data products. Please read this information carefully prior to using OMI data. Please respect the dates mentioned as the anomalies have occurred recently.

1) Anomaly 1: Since June 25th, 2007, cross-track scenes 53-54 (0-based).
2) Anomaly 2: Since May 11th, 2008, cross-track scenes 37-44 (0-based)
3) Anomaly 3: Since January 24th, 2009, cross-track scenes 27-44 (0-based).
4) Anomaly 4: Since July 5th, 2011, cross-track scenes 42-45 (0-based)
5) Anomaly 5: Since Aug, 2011, cross-track scenes 41-45 (0-based)

Recommendations To Users

At the moment no corrections have been implemented in the operational Level 1B and Level 2 data. It is recommended not to use the affected cross-track scenes. Please respect the dates mentioned above.

Release History

First release was: v1.0.0

V1.1.0.1 moved the fitting window from 395 nm in VIS channel to 350 nm in the UV-2 channel

V1.2.0 fixed problem with Processing Quality flag

V1.4.0 uses collection 3 radiances with a new soft calibration and a surface albedo climatology from TOMS in place of the previously fixed value of 15%. The data fields CloudPressure and CloudFraction are removed. The relevant products are named â€œCloudPressureforO3â€• and â€œCloudFractionforO3â€• .

V1.8.0 uses a new specification of the ocean surface reflectivity based on the Cox-Munk approach with climatological monthly estimates of water leaving radiance based on TOMS. The data field â€œXTrackQualityFlagsâ€ was added and the field â€œUVAerosolIndexâ€ was removed.

V1.9.0 updates the soft calibration coefficients yearly